

Remarks

In the present response, no claims are amended. Claims 1-23 are presented for examination.

Claim Rejections: 35 USC § 103(a)

Claims 1-5, 8-16, and 19-23 are rejected under 35 USC § 103(a) as unpatentable over US publication number 2004/0243692 (Arnold) in view of US publication number 2002/0107843 (Biebesheimer). These rejections are traversed.

The rejected claims recite one or more elements that are not taught or suggested in Arnold in view of Biebesheimer. These missing elements show that the differences between the combined teachings in the art and the recitations in the claims are great. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art. Some examples are provided below for the independent claims.

Overview of Claims and Primary References (Arnold and Biebesheimer)

As a precursor to the arguments, Applicants provide an overview of the claims and the primary references (Arnold and Biebesheimer). This overview will assist in determining the scope and content of the prior art as required in *Graham* (see *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 setting out an objective analysis for applying 103 rejections).

Storage allocation is a process that involves configuring and initializing data storage devices and mapping parts of the storage areas on those storage devices (see Arnold at paragraph [0002]). Many devices (such as physical storage media, storage area networks, switches, adapters, etc.) need to be adjusted during the storage allocation process. Arnold teaches methods to automate the steps involved in storage allocation (see Arnold summary of the invention).

Biebesheimer teaches systems and methods for performing context-based searches. A user submits a query, and a classifying system uses a context vector of data associated with an interaction state with the user to process the query and locate search results from a database. The idea is to relieve the user of describing a context for the

search by including criteria derived from both data and behaviors in a general population that may be unknown to the user.

In contrast to Arnold and Biebesheimer, Applicants' claims are directed to methods and systems of identifying an exceptional managed system among a set of comparable managed systems. Each managed system has a number of system configuration attributes, such as operating system (OS) platform, OS patches, applications installed, hardware settings, etc. First, parameterizations relating to the managed systems are selected. Parameterizations relate to a setting or a series of settings for system configuration attributes. Then, a pattern is determined for each of the parameterizations based on the system configuration attributes. For example, the pattern characterizes the system configuration attributes that are common among the managed systems. The managed systems are compared to the patterns to indicate whether a particular system deviates from a pattern that characterizes the configuration. Managed systems are then isolated based on the comparison. Systems that do not conform to the pattern, for example because they are exceptions to a rule generated by a machine learning algorithm, are identified and isolated. The patterns are determined by the machine learning algorithm.

Arnold and Biebesheimer Not Teach/Suggest All Claim Elements

The independent claims recite numerous elements that are not taught or suggested in Arnold in view of Biebesheimer. Some examples are provided below with respect to specific language appearing in claim 1.

As one example, claim 1 recites "determining a **pattern** for each of the parameterizations based on the system configuration attributes" (emphasis added). The Office Action equates the constraints in paragraph [0044] in Arnold with the claimed "parameterizations." Therefore, the issue is: Does Arnold teach determining a pattern for his constraints? No, Arnold does not. The Office Action does not argue that this element is taught or suggested in Biebesheimer.

Arnold does not even mention determining patterns for parameterizations or constraints. Arnold is silent as to determining patterns. The Office Action cites paragraph [0023] in Arnold. This paragraph discusses a management unit that obtains configuration

information and usage metrics to execute commands and functions that it deems appropriate. Paragraph [0023] does not mention or even suggest determining patterns for parameterizations or constraints. **Arnold does not even discuss the use of patterns.**

The differences between the claims and the teachings in the art are great since the references fail to teach or suggest all of the claim elements. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art.

For at least these reasons, the claims are allowable over Arnold in view of Biebesheimer.

As another example, claim 1 recites “comparing substantially each of the managed systems to substantially each of the patterns.” Nowhere does Arnold discuss making comparisons of managed systems to patterns for parameterizations based on system configuration attributes. Again, Arnold does not even discuss patterns, let alone making comparisons of patterns with system configuration attributes.

The Office Action cites paragraphs [0045] and [0049]. Paragraph [0049] discusses comparing observed (i.e., monitored) storage attributes with a quality of service. Nowhere, however, does Arnold teach comparing patterns with system configuration attributes. **Arnold does not even discuss the use of patterns.** The Office Action does not argue that this element is taught or suggested in Biebesheimer.

The differences between the claims and the teachings in the art are great since the references fail to teach or suggest all of the claim elements. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art.

For at least these reasons, the claims are allowable over Arnold in view of Biebesheimer.

As yet another example, claim 1 recites that the “patterns are determined by a supervised machine learning algorithm.” The Office Action admits that Arnold does not teach a machine learning algorithm (see OA mailed 06/29/2007 at p. 3: “Arnold does not specifically disclose a machine learning algorithm.”). Applicants agree with this admission. The Office Action, however, attempts to cure this deficiency with the teachings in Arnold at paragraphs [0025] and [0038]. Applicants respectfully disagree.

The Office Action essentially argues as follows: Policies and rules are used in the computer systems of Arnold. These same computer systems learn which nodes in a

network. Therefore, Arnold teaches machine learning. For various reasons, this argument is flawed.

Nowhere does Arnold discuss or even suggest that his computer systems somehow use machine learning algorithms. Arnold is completely silent on the concept of machine learning algorithms. Arnold does not even contemplate the use of such algorithms. Machine learning has a distinct meaning to one of ordinary skill in the art.

Paragraph [0025] in Arnold defines the meaning of a policy. According to Arnold, policies are rules that define a choice in behavior of a system, such a traditional conditional part and action part. When the conditional part is true (i.e., the Boolean value of 0 or 1 is true), then the computer performs an action (example, for customer A use Gold storage).

Paragraph [0038] in Arnold discusses Fig. 5B. Here, a policy manager obtains a policy, evaluates functions in a conditional part of the policy, obtains variables referenced in the conditional part, and evaluates the conditional part with the values. If a condition evaluates to a Boolean value, the action part of the policy is executed.

Paragraphs [0025] and [0038] are not related to machine learning. The concept of machine learning has a distinct meaning to one skilled in the art. The Office Action is construing the art and claims in an unreasonable manner.

According to MPEP § 2111.01, the words of a claim must be given their “plain meaning.” Wikipedia is an online dictionary (see www.wikipedia.com and in particular: http://en.wikipedia.org/wiki/Machine_learning) that defines “machine learning” as follows: “A broad subfield of artificial intelligence, machine learning is concerned with the design and development of algorithms and techniques that allow computers to learn.”

Applicants acknowledge that claims must be given their broadest interpretation during patent examination. However, this interpretation must be a “**reasonable interpretation consistent with the specification**” (see MPEP 2111: emphasis added). Applicants specification repeatedly uses the term “machine learning” in a manner consistent with the plain meaning of this term. Appellants respectfully ask the examiner to read p. 7, line 19 to p. 8, line 24. This section of Applicants’ specification show how the term “machine learning” is used in the ordinary and plain meaning.

In short, paragraphs [0025] and [0038] in Arnold do not teach or even suggest a computer system that uses “machine learning” as the plain meaning of this term is understood by one of ordinary skill in the art.

The Office Action cites Biebesheimer to teach “supervised” machine learning. Specifically, the Office Action cites paragraph [0015] in Biebesheimer. This paragraph uses the words “supervised machine learning” but the teachings in Biebesheimer are being taken out of context. The supervised machine learning in Biebesheimer is used on historical data to classify context attributes for a query search. This teaching has nothing to do with the context of the claims or even the teachings in Arnold.

Claim Rejections: 35 USC § 103(a)

Claims 6-7 and 17-18 are rejected under 35 USC § 103(a) as unpatentable over US publication number 2004/0243692 (Arnold) in view of US publication number 2002/0107843 (Biebesheimer) and US publication number 2003/0028825 (Hines). These rejections are traversed.

As explained above, Arnold and Biebesheimer fail to teach or suggest all of the elements of the independent claims. Hines fails to cure these deficiencies. Thus for at least these reasons, claims 6-7 and 17-18 are allowable over Arnold in view of Biebesheimer and Hines.

CONCLUSION

In view of the above, Applicants believe that all pending claims are in condition for allowance. Allowance of these claims is respectfully requested.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. 832-236-5529. In addition, all correspondence should continue to be directed to the following address:

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